



Teacher education is a deeply pedagogical process rooted in values, ethics, and the social purpose of schooling. Globally, it sits at the core of educational quality and fairness, as research in comparative and international education demonstrates: the training of teachers directly influences students' learning chances, social inclusion, and the democratic aims of schools. Teachers are not simply transmitters of curricula, but active professionals whose convictions, reflective skills, and ability to manage the complexities of classroom life give shape and substance to the educational experience itself.

The pedagogical dimension of teacher education frames teaching as a relational, context-aware, and ethically grounded profession rather than just a set of procedural skills. From a research perspective, this demands robust research methodologies that can critically examine the complex realities of schools and inform evidence-based policies. Equally important is the connection between theory and practice, which helps to bridge the persistent gap between universities and schools.

The contributions gathered in this volume reflect the richness and diversity of experiences showcased during the ATEE Spring Conference 2024, held at the University of Bergamo from May 29 to June 1, 2024. The volume presents 70 selected papers out of more than 300 presented by researchers representing over 40 countries.

This broad spectrum of studies highlights promising directions that can inspire renewed inquiry and concrete proposals aimed at improving contemporary educational systems.

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Teacher education research in Europe: trends, challenges, practices and perspectives

May 29th – June 1st, 2024
S. Agostino, Bergamo



Edited by Nicole Bianquin and Francesco Magni





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BOOK OF PROCEEDINGS

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S. Agostino, 2 - Bergamo, Italy

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Attitudes of Humanities Students and Aspiring Teachers Toward Quantitative Educational Research: An Introductory Study

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Abstract

This study explores the attitudes of humanities students, aspiring teachers enrolled in a master's degree program focused on teaching, towards educational research methods courses. Using Papanastasiou's (2005) scale, the study compared attitudes between students who attended traditional lectures and exercises and those who participated in practical research labs. The results indicate that students involved in research labs demonstrate more positive attitudes and a greater awareness of the value of educational research. However, both groups share common anxieties about the challenges associated with research. The study highlights the need to integrate more practical opportunities to foster a positive view of research among future humanities teachers.

Keywords: humanities Master's Degree students; quantitative educational Research; initial teacher education; attitudes toward research.

1. Introduction

Despite the acknowledged importance of educational research in the preparation of competent teachers, negative attitudes towards research often emerge among future teachers. They often perceive educational research as complex and uninspiring (Papanastasiou, 2005) and find it difficult to understand its relevance to their professional practice. Indeed, indicating a potential deficiency in the initial training they receive, pre-service teachers also encounter difficulties in translating the findings of scientific research into tangible improvements in their pedagogical approaches (Margiotta, 1999; Impedovo et al., 2016).

European policies have sought to enhance the role of universities in promoting scientific research, with the objective of consolidating the European Union as a global leader in knowledge. In response to this situation, European universities have incorporated research courses into their academic programmes. Nevertheless, there is considerable variation in the level of commitment and the quality of training in this area, particularly in initial teacher training programmes (van der Linden et al., 2012). The incorporation of research training is regarded as a pivotal element in fostering a critical and reflective approach to educational practice (Hall, 2009), enhancing professional knowledge (Ponte et al., 2004), furnishing evidence on efficacious teaching strategies (Hattie et al., 2019) and facilitating the translation of research findings into tangible improvements (Papanastasiou, 2005).

The literature review reveals a noticeable lack of studies focusing on Humanities Masters students enrolled in teacher education programmes. In particular, there is a lack of research that thoroughly investigates differences in attitudes towards research among these students, especially those without previous training in pedagogy and education. Furthermore, there is a paucity of research that explores the impact of different teaching methods applied in educational research courses on students' attitudes towards the discipline (Earley, 2014; Matos et al., 20-23). This gap in the literature highlights the need for further research to better understand how to effectively support and engage humanities students in educational research, particularly in the context of initial teacher education.

The present study seeks to address the above shortcomings by investigating the influence of an educational quantitative research course on students' attitudes. It aims to contrast the attitudes of two groups of students: those who only participated in lectures and exercises (from now on, as an exercise group) and those who additionally engaged in hands-on workshops on authentic case studies (from now on, as the laboratory group). The research questions that inform this study are as follows: What are the differences in attitudes towards the study of educational research between students in the exercise group and students in the laboratory group? What are the differences in attitudes towards the practical application of educational research in professional contexts between students in the exercise group and students in the laboratory group? Are there significant differences in attitudes towards educational research, both positive and negative, between students in the exercise group and students in the laboratory group?

The hypothesis that guides this research is that developing an appreciation of research requires not only time and theoretical study, but also, and more importantly, the practical application of research on real educational cases. The objective of this study is to provide valuable insights that can be used to enhance the design of educational research courses, with the ultimate goal of training teachers who are better prepared and motivated to integrate research into their future professional practice.

2. Research literature

An analysis of the literature shows that most publications on the teaching of educational research focus mainly on scientific and educational fields, such as mathematics, natural sciences and linguistics (in the context of teacher training), or on social science disciplines, such as sociology, psychology and education, where the teaching of educational research methods is considered an essential part of the curriculum. On the contrary, there is a considerable paucity of studies devoted to teacher education programmes in the humanities, highlighting a significant gap in the literature regarding the preparation and support of these students in the acquisition of educational research skills.

The results show that students in initial teacher education often have negative attitudes towards educational research methods, which are perceived as distant from their future study and career prospects (Papanastasiou, 2005). This lack of interest is further confirmed by Earley (2014), who reports a low propensity of students to consult research sources, especially when they do not perceive their practical benefits.

Another important aspect concerns students' perceived lack of connection between research methodology courses and their professional aspirations in teaching (Matos et al., 2023). Students often believe that research is a complex and time-consuming activity (Moberg, 2019). Mante et al. (2018) highlighted that during initial teacher education, prospective teachers from humanities backgrounds had more negative attitudes towards research than their counterparts from science backgrounds. This suggests that greater exposure to research during previous studies may foster more positive attitudes (Butt et al., 2013). Indeed, postgraduate students tend to have more favourable perceptions of research, perhaps due to greater exposure and practice during their studies, as noted by Maqsood et al. (2019).

Many students experience anxiety about research methods courses (Bolin et al., 2012), and negative attitudes can hinder learning and affect performance in subsequent modules (Papanastasiou, 2005). However, positive attitudes towards research can improve internal motivation, while active involvement in research projects tends to reinforce these attitudes (Earley, 2014).

The literature review shows that there is a lack of specific information on the attitudes towards educational research of students in humanities master's programmes with teaching-oriented curricula. Therefore, this study aims to contribute to the understanding of such attitudes and to explore whether practical activities, such as laboratory, can positively influence students' perceptions of educational research. The ultimate aim is to address the gaps identified in previous literature reviews (Earley, 2014; Matos et al., 2023) and develop educational interventions to improve these attitudes.

3. Methods and instruments

This study investigates the influence of an educational research course on students' attitudes towards educational quantitative research using an adapted version of Papanastasiou's (2005) Attitudes Towards Research (ATR) scale. The scale was modified to better reflect the context of the teaching-oriented Master's programme by organising the items into three main categories: attitudes towards the study of educational research, practical application of research in the professional field, and positive and negative attitudes towards research.

1. Attitudes towards studying educational research: this dimension analyses students' perceptions of the relevance and usefulness of research in their academic careers and assesses their interest in learning research methods.
2. Attitudes towards the application of research in the professional field: this dimension explores the link between educational research and students' future professional practice, looking at how they view the use of research in solving teaching problems and improving teaching practice.
3. Positive and negative attitudes to research: the third category distinguishes between positive attitudes, such as interest and emotional involvement, and negative attitudes, such as anxiety, fear and perceived difficulty, towards educational research.

The adaptation of the scale included a reformulation of the items to emphasise students' perceptions of the relationship between educational research and their educational and professional future. The items were changed from generic to personal wording to encourage more authentic responses based on individual beliefs. The questionnaire used has 22 items, compared to 32 in the original, excluding items related to mathematics and statistics, which are not relevant to the course.

A five-point Likert scale from 'strongly disagree' to 'strongly agree' was used to measure responses. Prior to completion, participants provided demographic information such as gender, age, native language, occupation, career aspirations, and participation in other research methodology courses.

4. Participants and results

4.1 Participants

Twenty-nine out of 37 students enrolled in the Educational Research course voluntarily completed a self-administered questionnaire at the end of the course (response rate: 78.4%). Participants' mean age was 24.1 years (SD = 3.1); 86.2% were female (n = 25) and 13.8% male (n = 4). Most students (89.7%) aimed to become secondary school teachers, while the remainder (10.3%) considered alternative careers. None had prior experience with research courses or educational research. Based on course activities, students were divided into two groups: the exercise group (62.1%), who attended lectures and exercises only, and the laboratory group (37.9%), who also participated in a practical research lab. This grouping enabled comparison of attitudes toward educational research between the two groups.

4.2 Reliability and normality analysis of the sample

To assess the reliability of the questionnaire, Cronbach's alpha was calculated. The overall internal consistency was excellent ($\alpha = 0.936$ for all 22 items). Reliability for individual subscales was also satisfactory: attitudes toward research study ($\alpha = 0.787$), attitudes toward research in teaching ($\alpha = 0.959$), positive attitudes ($\alpha = 0.892$), and negative attitudes ($\alpha = 0.929$).

Given the small sample size (<50), the Shapiro-Wilk test was used to check data normality. Results confirmed a normal distribution ($p = 0.257$).

4.3 Analysis of total questionnaire responses by laboratory and practice groups

To examine differences in attitudes towards educational research between the laboratory and exercise groups, we conducted a series of t-tests. Overall, the laboratory group showed significantly more positive attitudes (M = 3.87, SD = 0.27) compared to the exercise group (M = 3.02, SD = 0.82), with a t-value of 3.292 and a p-value of 0.003. The 95% confidence interval for the difference between the means ranged from 0.321 to 1.38, allowing us to reject the null hypothesis of no difference.

When looking specifically at attitudes toward studying educational research, the laboratory group again scored higher (M = 4.06, SD = 0.25) than the exercise group (M = 3.08, SD = 0.75). This difference was statistically significant, with $t(27) = 4.113$ and $p < 0.001$, and a 95% confidence interval between 0.490 and 1.466.

Similarly, attitudes toward the teaching profession were more positive in the laboratory group (M = 4.13, SD = 0.60) than in the exercise group (M = 3.05, SD = 1.10), with a significant difference indicated by $t(27) = 2.956$, $p = 0.006$, and a confidence interval from 0.328 to 1.821.

Positive affective attitudes toward research also differed significantly between groups. The laboratory group reported higher scores (M = 3.90, SD = 0.63) compared to the exercise group (M = 2.87, SD = 1.07), with $t(27) = 2.892$, $p = 0.007$, and a confidence interval ranging from 0.300 to 1.767.

In contrast, negative attitudes toward research did not differ significantly between the two groups. The laboratory group's mean was 3.40 (SD = 0.82), while the exercise group's mean was 3.03 (SD = 1.21). The t-test yielded $t(27) = 0.879$ with a p-value of 0.387, and the confidence interval (-0.489 to 1.222) included zero, indicating no significant difference.

These findings suggest that participation in the practical research laboratory is associated with more positive attitudes toward educational research, while negative attitudes remain similar regardless of group.

5. Discussion

The questionnaire results reveal clear differences in attitudes toward educational research between students who participated in the practical laboratory and those who only attended exercises. While both groups share some negative perceptions, the differences highlight the complexity of students' views on educational research, consistent with previous studies (Papanastasiou, 2005; Moberg, 2019; Maqsood et al., 2019).

The laboratory group showed a higher overall mean attitude score (3.87) compared to the exercise group (3.02), indicating greater awareness and appreciation of educational research. This score is

slightly higher than those reported by Papanastasiou (2005). Moreover, the laboratory group's responses were more consistent, as reflected by a lower standard deviation (0.27 vs. 0.82), suggesting more homogeneous opinions likely influenced by their hands-on research experience, as supported by earlier research (Papanastasiou, 2005; Moberg, 2019; Maqsood et al., 2019).

Specifically, the laboratory group rated the importance of educational research significantly higher (4.64 vs. 3.22), reflecting stronger motivation and conviction about learning and applying research methods. They also perceived research as more useful (4.45 vs. 3.00), exceeding expectations from previous studies. Interestingly, the laboratory group showed a slightly lower tendency to consult research articles than the exercise group (3.09 vs. 2.78), a finding aligned with Earley's (2014) observations.

Both groups agreed that educational research is underutilized in their pedagogical studies, pointing to a gap between theory and practice. This underscores the need to better integrate research concepts into teacher education curricula to bridge this divide.

In the area of 'Research and the profession,' the laboratory group expressed a stronger inclination to apply research in their future teaching practice (4.45 vs. 3.00), despite some reported difficulties in accessing scientific literature (Maqsood et al., 2019). Both groups recognize the value of research in teaching, but the laboratory group's greater confidence supports Ponte et al.'s (2004) idea that sustained exposure to scientific foundations improves attitudes toward research.

Regarding emotional responses, the laboratory group demonstrated more positive feelings about educational research than the exercise group. However, both groups experienced similar levels of anxiety and negative emotions related to research, highlighting the emotional challenges students often face, as noted by Bolin et al. (2012) and Papanastasiou (2005).

Overall, these findings suggest that while practical laboratory experience fosters more positive and confident attitudes toward educational research, significant barriers remain. Anxiety, perceived difficulties in engaging with research, and challenges in consulting academic papers continue to affect students. Addressing both motivational and emotional aspects is essential to support future teachers in developing a balanced and resilient approach to educational research.

6. Conclusion

This study confirms and expands on findings from the literature regarding the attitudes of humanities students towards educational research. As highlighted by previous studies (Papanastasiou, 2005; Earley, 2014; Matos et al., 2023), students in initial teacher education programs often hold negative attitudes towards educational research methods, perceiving them as distant from their professional aspirations and of limited relevance to their future careers. This perception is particularly pronounced among humanities students, a group that has been underrepresented in the literature compared to those in scientific and social science disciplines.

The results of this study indicate that incorporating practical laboratories into educational research courses can positively influence these attitudes. Students who participated in the laboratory showed greater awareness and motivation towards research, confirming the importance of active and direct engagement, as suggested by Earley (2014) and Moberg (2019). This practical experience appears to foster more cohesive opinions and a more positive attitude, although challenges related to anxiety and perceived complexity remain, as noted by Bolin et al. (2012).

A crucial finding is the widespread perception of a lack of integration between pedagogical course content and educational research. Students perceive pedagogical courses as overly theoretical and insufficiently connected to concrete examples and case studies, which may limit the effectiveness of learning and motivation (Matos et al., 2023). Strengthening the links between scientific literature and teaching could help develop a more scientific and critical approach, similar to that found in disciplines such as psychology, science of education, and sociology (Papanastasiou, 2005).

Among the main limitations of this study are the small sample size and the homogeneity of the groups, factors that may have affected the validity and generalizability of the results. Additionally, variability in context and differences in students' understanding of the questionnaire items may have introduced further uncertainties in the data collected. To overcome these limitations, future research

should adopt a mixed-methods approach, integrating in-depth qualitative analyses such as interviews or focus groups to enrich understanding of students' perceptions of educational research (Maqsood et al., 2019; Moberg, 2019).

Despite these limitations, the study highlights the potential of hands-on laboratory activities to foster more positive and engaged attitudes toward educational research among humanities students. Even brief and limited exposure to research, supported by a small number of academic publications in their field, can have a significant impact on teacher training, as also suggested by Ponte et al. (2004).

To improve the effectiveness of educational research training, it is essential to design integrated and interdisciplinary curricula that combine practical experience, emotional support, and explicit connections to scientific literature. Only in this way will it be possible to prepare future teachers who are more aware, motivated, and capable of using research as a fundamental tool in their professional practice.

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